Example #5: Locating Vertical Curve Elevations

A crest vertical curve with a length of 400 ft connects grades +1.0% and -1.75%. The VPI station 35+00 and elevation 549.2 ft.

What are the elevations and stations of VPC & the VPT?

VPI Elevation = VPC elev $+G_1*L/2$
VPI Station = VPC station + L/2

VPC = 549.20 - 0.01*400/2
VPC elevation = 547.20 ft

VPC station = 3500–400/2
VPC station = 33+00

VPI Elevation = VPT elev $- G_2*L/2$
VPT Station = VPC station + L

VPT = 549.20 + (-0.0175)*400/2
VPT elevation = 545.70 ft

VPT station = 3500+400/2
VPT station = 37+00